Lead poisoning is one of the most common environmental child health problems in the United States and is caused by too much lead in the body. Lead is especially harmful to children younger than 6, but anyone who eats, drinks or breathes something which has too much lead can get lead poisoning.

Large amounts of lead in a child's blood can cause brain damage, mental retardation, behavior problems, anemia, liver and kidney damage, hearing loss, hyperactivity, developmental delays, other physical and mental problems, and in extreme cases, death.

Lead poisoning affects three to four million young children - one in six under age 6.

Where does lead come from?

Unlike many environmental health problems, lead contamination is often found at home, in paint, house dust, drinking water and soil.

- Lead in paint. About 75 percent of houses and apartments built before 1978 in the United States contain lead paint. Houses built before 1960 may contain old lead paint with concentrations up to 50 percent lead by weight. Children can get poisoned by chewing on a lead painted windowsill or eating lead paint chips. The more common cause, however, is getting lead dust on their hands and into their mouths. Lead dust is released from chipping and peeling paint; home renovation projects that disturb lead paint; and lead paint ground up by friction, such as on window sashes, porch floors, etc.

- Lead in soil. Outside, in public playgrounds and in their own yards, the dirt where children play may contain high lead levels. Decades of peeling exterior building paint, air emissions from leaded car exhaust and pollution from smelters and other industries are significant sources. The highest levels of lead in soil usually are found close to foundations of homes painted with exterior leaded paint.

- Lead in dust. Window sills and window wells often have high levels of lead dust. In addition to lead dust from paint, lead dust also comes from soil and airborne emissions, such as incinerators, smelters and other industries. Many children are

poisoned by lead dust brought home by their parents from the workplace - millions of people are exposed to lead in their jobs. Lead dust is very fine, can be invisible, and is hard to clean up. It gets on children's hands and toys and then into their mouths through normal behavior, such as thumb sucking.

- Lead in water. The Environmental Protection Agency estimates drinking water is the source of about 20 percent of Americans' lead exposure. Lead leaches out into the water from old lead pipes and service lines in city systems and from home plumbing. Even after lead pipes were banned, leaded solder was legal for use on drinking water lines until the 1980s and is still for sale in hardware stores. Faucets and plumbing fittings may legally contain up to 8 percent lead. The greatest risk is to infants using formula mixed with contaminated water.

- Other lead sources. Lead can leach into food or beverages stored in imported ceramics or pottery and leaded crystal and china. Certain hobbies use products with lead in them (fishing sinkers, stained glass, ceramics). Lead can be found in some folk remedies, "health foods" and cosmetics.

Why is there concern about low lead levels in children? Even small amounts of lead can harm a child's brain, kidneys and stomach. Lead poisoning can slow a child's development and cause learning and behavior problems.

A child may have lead poisoning and not feel sick. Or the child may have stomach aches, headaches, a poor appetite or trouble sleeping, or be cranky, tired or restless.

There is new evidence that lead poisoning is harmful at blood levels once thought safe. Lower IQ scores, slower development and more attention problems have been observed in children with lead levels as low as 10 micrograms per deciliter. (Micrograms per deciliter, written ug/dL, indicates the amount of lead in a deciliter of blood.)

How can parents find out if their child has too much lead?

A blood test is the only way to find out if a child has too much lead. The Centers for Disease Control and Prevention (CDC) recommends testing every child at 12 months of age, and if resources allow, at 24 months. Screening should start at 6 months if the child is at risk of lead exposure (for example, if the child lives in an older home built before 1960 which has peeling or chipping paint). Decisions about further testing should be based on previous blood-lead test results, and the child's risk of

lead exposure. In some states, more frequent lead screening is required by law.

What do the test results mean?

The test will identify how many micrograms of lead are found in one deciliter of the child's blood. Based on what is known today, children should have under 10 micrograms per deciliter (10 ug/dL) of blood lead concentration. If higher levels are found, there are certain steps that can be taken.

At 10-19, a child has mild lead poisoning. He or she should be retested in a few months. The home and all the places the child spends time should be checked for lead sources. Identified lead hazards should be controlled. Frequent wet cleaning and handwashing will help reduce lead dust. Good nutrition can help the child fight lead.

A blood lead level between 20-44 means the child has moderate lead poisoning. Sources of lead in the child's environment must be removed. Such a child may need chelation therapy to remove lead from the body. Chelation therapy means the child is given a drug capable of binding lead and reducing its acute toxicity. All drugs have potential side effects and must be used with caution.

A blood lead concentration of 45-69 is severe lead poisoning. A child needs both medical treatment and lead removed from the environment.

If the child's blood lead level tests over 70, it is an acute medical emergency. The child may stay in the hospital for treatment and not be released until he or she can return to a lead-free safe home.

What can parents do to reduce their children's blood-lead levels?

Some interventions suggested by CDC include:

Housekeeping:

- Keep children away from peeling or chipping paint and accessible or chewable surfaces painted with lead-based paint, especially windows, window sills, and window wells.
- Wet mop and wet wipe hard surfaces, using trisodium phosphate detergent (found at hardware stores) or automatic dishwasher soap and water.
- Do not vacuum hard surfaces because this activity is believed to scatter dust.
- Wash children's hands and faces before they eat.
- Wash toys and pacifiers frequently.

Nutrition:

- Make sure children eat regular nutritious meals, since more lead is absorbed on an empty stomach.
- Make sure children's diets contain plenty of iron and calcium:
  Examples of foods high in iron are liver, fortified cereal, cooked beans, spinach, and raisins.
  Examples of foods high in calcium are milk, yogurt, cheese, and cooked greens.

Soil:

If soil around the home is likely to be lead-contaminated (such as around a home built before 1960 or near a major highway), plant grass or other ground cover. If lead-based paint is the source of soil contamination, most lead will be near painted surfaces such as exterior walls. In such cases, plant bushes next to the house to keep children away. If the soil is contaminated with lead, provide a sandbox with a solid bottom and top cover, and clean sand for children to play and dig in.

Water:

If the lead content of tap water in the home is higher than the drinking water standard, let the water run for several minutes (until the temperature changes) before using it. Use only fully-flushed water from the cold-water tap for drinking and cooking. To conserve water, collect drinking water in bottles at night after water has been fully flushed from the tap. (This procedure will help if the source of lead is from the home's plumbing. It will not help if the city water supply is lead contaminated. For information on how to get drinking water tested, call 1-800-426-4791.)

Food:

Do not store food in open cans, especially imported cans. Do not store or serve food in pottery that is meant for decorative use. Also, do not store food or beverages in lead crystal or china.

Parents' work or hobbies:

If members of the family work with lead, make sure children are not exposed through any lead-contaminated clothing or scrap material brought home.

What about removing lead-based paint from a house?

If inspection shows the house has lead-based paint, the family should not renovate or attempt to remove the paint themselves. Work should be done by someone who knows how to protect workers, the family and the environment. The family should not be in the home during renovations or paint removal.